



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/650,044	08/28/2003	Ikuya Yamashita	101175-00035	6945
4372	7590	01/28/2008	EXAMINER	
ARENT FOX LLP 1050 CONNECTICUT AVENUE, N.W. SUITE 400 WASHINGTON, DC 20036			MERKLING, MATTHEW J	
			ART UNIT	PAPER NUMBER
			1795	
			NOTIFICATION DATE	DELIVERY MODE
			01/28/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

DCIPDocket@arentfox.com
IPMatters@arentfox.com
Patent_Mail@arentfox.com

Office Action Summary	Application No.		Applicant(s)	
	10/650,044		YAMASHITA ET AL.	
	Examiner		Art Unit	
	Matthew J. Merkling		1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 December 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/ are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/7/07 has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1 and 3-7 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicant amended claim 1 to include the limitation "a pressurization means, provided only in the second supply line...". Applicant did illustrate an embodiment where there is no compressor in the first supply line (see

Art Unit: 1795

Fig. 1). However, nowhere in the disclosure, as originally filed, did Applicant exclude a compressor from all other locations in the present invention.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1 and 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fairlie et al. (WO 00/69773) as evidenced by Sircar et al. (US 6,103,143).

Regarding claims 1 and 7, Fairlie discloses a hydrogen supply unit comprising:
a reforming means for generating hydrogen gas by reforming a source gas
(page 5 line 31 – page 6 line 5);

a first storage means for storing and supplying the hydrogen gas obtained by said reforming means to a first fuel cell used as a stationary electric power supply (see claim 17 of Fairlie where Fairlie discloses an electrical generating means, such as a fuel cell (see page 20 lines 28-31), that received hydrogen from a storage means);

a second storage means for storing and supplying the hydrogen gas obtained by said reforming means to a second fuel cell used as a mobile electric power supply (such as a compressed storage tank for subsequent transfer to a vehicle, page 2 lines 22-29);

a pressurization means (as mentioned above, the pressurization means supplies compressed hydrogen to a storage tank for subsequent transfer to a vehicle, page 2 lines 22-29), provided only in the second supply line (Fairlie discloses not using a compressor, and storing the hydrogen in a non-vehicle storage, page 7 lines 25-28), for pressurizing the hydrogen gas to be stored by the second storage means;

a purifying means, located upstream of the first storage means in the first supply line, for purifying hydrogen gas reformed by the reforming means (see page 5 line 31 – page 6 line 5 where Fairlie discloses purifying the reformer outlet).

Furthermore, Fairlie discloses multiple users that utilize the same hydrogen source (for example, see Fig. 1). Fairlie discloses multiple uses for the hydrogen, such as a stationary generator as well as to power a vehicle (as mentioned above). Fairlie, however does not teach a second purifying means located in the second supply line.

However, it is well known in the art that different users of a hydrogen source often require different purities (see Sircar col. 8 line 67 – col. 9 line 2). As such, it would have been obvious to one of ordinary skill in the art at the time of the invention to add another purification means (duplicate) in the second supply line to supply a second user with a different purity hydrogen that that which is supplied to a first user.

Regarding claim 6, Fairlie further discloses a control system that measures amount of available energy (hydrogen) and operates the hydrogen production

means (reformer) based on the amount of hydrogen remaining and demand of the users (see page 20 lines 3-20).

Regarding limitations recited in claim 5 which are directed to a manner of operating disclosed system, neither the manner of operating a disclosed device nor material or article worked upon further limit an apparatus claim. Said limitations do not differentiate apparatus claims from prior art. See MPEP §2114 and 2115. Further, process limitations do not have a patentable weight in an apparatus claim. See *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969) that states "Expressions relating the apparatus to contents thereof and to an intended operation are of no significance in determining patentability of the apparatus claim.

6. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fairlie et al. (WO 00/69773) as applied to claim 1 above, and further in view of Ogino (JP 10-139401).

Regarding claims 3 and 4, while Fairlie discloses a hydrogen storage means that stores hydrogen supplied from a reformer, Fairlie fails to teach:

- a hydrogen absorbing alloy in the hydrogen storage means,
- said storage means releases the hydrogen gas from a hydrogen absorbing alloy by use of waste heat of said reforming means or waste heat of said fuel cell,

Ogino also discloses a hydrogen storage means that stores hydrogen supplied from a reformer.

Art Unit: 1795

Ogino teaches a preferable storage means that stores hydrogen by use of a hydrogen absorbing alloy and subsequently releases said hydrogen from the alloy by heat exchange from waste heat from the fuel cell (paragraph 108).

As such, it would have been obvious to one of ordinary skill in the art to utilize the absorbing alloy and hydrogen releasing method of Ogino, in the hydrogen supply unit of Fairlie, in order to preferably store and remove hydrogen in said storage tank.

Response to Arguments

7. Applicant's arguments with respect to claims 1 and 3-7 have been considered but are moot in view of the new ground(s) of rejection necessitated by amendment.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J. Merklings whose telephone number is (571) 272-9813. The examiner can normally be reached on M-F 8:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on (571) 272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1795

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MM

MJM

Alexa D. Neckel
ALEXA D. NECKEL
SUPERVISORY PATENT EXAMINER